



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,136	12/11/2003	Yiliang Wu	D/A3401	7393

25453 7590 09/05/2006

PATENT DOCUMENTATION CENTER  
XEROX CORPORATION  
100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR  
ROCHESTER, NY 14644

EXAMINER
----------

TALBOT, BRIAN K

ART UNIT	PAPER NUMBER
----------	--------------

1762

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

4

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,136	<b>Applicant(s)</b> WU ET AL.	
	<b>Examiner</b> Brian K. Talbot	<b>Art Unit</b> 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25,30 and 31 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25,30 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The amendment filed 6/20/06 has been considered and entered. Claims 25-29 have been canceled. Claims 30 and 31 have been added.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In light of the amendment filed 6/20/06, the 35 USC 112 first paragraph rejection has been withdrawn. The 35 USC 102 rejection has also been withdrawn, however, the following 35 USC 103 rejection has been necessitated by the amendment.

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1762

5. Claims 1-25,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. (6,348,295) in combination with Heath et al. (6,103,868) or Murray et al. (6,262,129).

Griffith et al. (6,348,295) teaches method for manufacturing electronic elements by thin-film forming methods. Colloidal suspension of nanoparticles that exhibit electrical characteristics. The nanoparticles are surrounded by an insulative shell that may be removed by therefrom by application of energy including heating while the nanoparticles are fused (abstract). The layer may be a continuous film or a desired pattern. The size of the nanoparticles range from 1 nm - 999 nm and may be conductive or semiconductive (col. 3, lines 10-20). The capping groups include amines, thiols, pyridine, etc. (col. 3, lines 40-60). Griffith et al. (6,348,295) teaches substrates as flexible plastics (col. 1, lines 43-46). Griffith et al. (6,348,295) also teaches that the resistivity of the capping group is  $10^9$  ohms/cm or more (col. 3, lines 25-35).

Griffith et al. (6,348,295) fails to teach a stabilizer having the claimed boiling point or decomposition temperature lower than 250°C under 1 atmosphere.

Heath et al. (6,103,868) (abstract, col. 3, line 45 – col. 4, line 35 and example 2 (dodecylamine) or Murray et al. (6,262,129) (abstract, claims, and col. 6, line 5 – col. 10, line 35) both teach stabilizers for nanoparticles which have decomposition or boiling points in the claimed range. It is noted that some of the claimed stabilizers disclosed are recited in the instant application.

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Griffith et al. (6,348,295) process by substituting one known

Art Unit: 1762

stabilizer for another as evidenced by Heath et al. (6,103,868) or Murray et al. (6,262,129) with the expectation of achieving a stable solution by reducing aggregation and/or precipitation of the nanoparticle solution.

With respect to claims 8,9 and 19-23 Griffith et al. (6,348,295) is silent regarding nanoparticles being metal composites, heating temperatures of less than 250°C and the conductivity of the layer.

While the Examiner acknowledges this fact, Griffith et al. (6,348,295) does teach heating by lasers to remove the capping layer and fuse the nanoparticles to form a conductive layer. It is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar results regardless of the heating process utilized as long as the capping layer is decomposed and the nanoparticles are fused to form the conductive layer. Also Griffith et al. (6,348,295) teaches "moderate heating" which would be suggestive of the claimed heat temperature (col. 5, line 30-40). Regarding the nanoparticles being metal composites v. metals and the conductivity, it is the Examiner's position that this would be a design choice of one practicing in the art and depends upon the end product desired and therefore is deemed as an obvious modification of the art. Furthermore, one skilled in the art would have had a reasonable expectation of achieving similar results with either nanoparticle or conductivity desired.

***Response to Amendment***

6. Applicant's arguments with respect to claims 1-25,30 and 31 have been considered but are moot in view of the new grounds of rejection.

Applicant argued that Griffith et al. fails to teach a stabilizer having the claimed boiling point or decomposition temperature lower than 250°C under 1 atmosphere.

Heath et al. (6,103,868) or Murray et al. (6,262,129) teaches this limitation as detailed above.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1762

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT